TM 3-4240-202-14

TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DS AND GS MAINTENANCE MANUAL

MASK, CHEMICAL-BIOLOGICAL: FIELD, ABC-M17 AND ACCESSORIES

HEADQUARTERS, DEPARTMENT OF THE ARMY

JULY 1971

TECHNICAL MANUAL
No. 3–4240–202–14

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *30 July 1971*

Operator's, Organizational, DS, and GS Maintenance Manual
MASK, CHEMICAL-BIOLOGICAL: FIELD, ABC–M17 AND ACCESSORIES

		Paragraph	Page
CHAPTER 1.	INTRODUCTION		
Section I.	General		
	Scope	1	3
	Record and report forms	2	3
II.	Use and Functioning		
	Use	3	3
	Functioning	4	3
III.	Description		
	General	5	4
	Description	6	4
IV.	Accessories		
	General	7	8
	Optical inserts	8	8
	ABC–M6A2 field CB mask hood	9	8
	ABC–M4 field CB mask winterization kit	10	12
	M1A1 (M1E1) CB mask waterproof bag	11	14
CHAPTER 2.	OPERATING INSTRUCTIONS		
Section I.	Handling Mask		
	General	12	18
	Stowing mask in carrier	13	18
	Waterproofing mask	14	18
	Identifying an individual's mask	15	18
	Filter elements	16	19
II.	Fitting and Checking Mask for Leaks		
	Fitting	17	20
	Checking for leaks	18	20
III.	Operating Instructions		
	General	19	21
	Donning, using, and removing mask	20	21
IV.	Cold Weather Use of Mask		
	General	21	22
	Donning and removing mask	22	22
CHAPTER 3.	MAINTENANCE INSTRUCTIONS		
Section I.	Operator's Maintenance		
	General	23	24
	Preventive maintenance checks and services	24	24
	Decontaminating mask	25	25
	Cleaning and conditioning mask	26	25
	Sanitizing mask	27	26
	Inlet valve caps	28	26
	Inlet valve disks and nose cup valve disks	29	26
	Filter elements	30	27
	Outlet valve disk	31	27
	Eyelens outserts and M1 waterproofing bag	32	28
II.	Organizational Maintenance		
	Service upon receipt of new equipment	33	28
	Service upon receipt of used equipment	34	28
	Flap buttons	35	28

*This manual supersedes TM 3–4240–202–14, 29 November 1698.

		Paragraph	Page
Section II.—Continued.			
	Temple pins	36	29
	Voicemitter-outlet valve cover	37	29
	Clip buckles	38	29
	Head harness	39	29
	Carrier	40	29
III.	Direct Support and General Support Maintenance		
	Direct support maintenance	41	30
	General support maintenance	42	30
CHAPTER 4.	SHIPMENT, STORAGE, AND DESTRUCTION TO PREVENT ENEMY USE		
Section I.	Shipment and Storage		
	Shipment	43	31
	Storage	44	31
II.	Destruction to Prevent Enemy Use		
	General	45	31
	Destruction to prevent enemy use	46	31
APPENDIX A.	REFERENCES		32
B.	BASIC ISSUE ITEMS		33
C.	MAINTENANCE ALLOCATION		34

LIST OF ILLUSTRATIONS

Figure No.	Title	Page
1	ABC–M17 field CB mask	4
2	Facepiece, exploded view	5
3	Filter elements	6
4	Eyelens outsert	6
5	M1 waterproofing bag	6
6	Carrier	7
7	ABC–M6A2 field CB mask hood	9
8	Tearing off cape	10
9	Tying cords around bottom of crimping ring	11
10	Stowing mask and hood in carrier	12
11	ABC–M4 field CB mask winterization kit	12
12	Ice particle prefilter	13
13	Winterizing valve disks	13
14	Ice particle prefilter assembled to mask	14
15	M1A1 (M1E1) waterproof bag	15
16	Waterproof bag containing mask	16
17	Bending bag for storage in carrier	17
18	Proper position of mask in carrier, cutaway view	19
19	Checking for leaks	20
20	Clearing mask	21

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

These instructions are for use by the operator, and organizational, direct support, and general support maintenance personnel. They apply to the Mask, Chemical-Biological: Field, ABC–M17.

2. Record and Report Forms

a. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38–750.

b. The reporting of errors, omissions, and recommendations for improving this manual by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commanding Officer, Edgewood Arsenal, ATTN: SMUEA–TSE–TP, Edgewood Arsenal, Md. 21010.

Section II. USE AND FUNCTIONING

3. Use

The ABC–M17 mask (fig. 1) is used to protect the face, eyes, and respiratory tract of the wearer from field concentrations of chemical and biological (CB) agents. This mask does not protect the user against ammonia or carbon monoxide, nor is it effective in confined spaces where the oxygen content of the atmosphere is too low to maintain functional capability (below 18 percent). Refer to TB MED 223 for lists of proper respiratory devices for other than combat use.

4. Functioning

a. When ABC–M17 mask is worn, filter elements in the mask remove chemical or biological agents from the air. Inhaled air passes through inlet valves and filter elements into the facepiece. Exhaled air is discharged through an outlet valve at the chin position.

b. A voicemitter at the mouth position permits the user to communicate audibly.

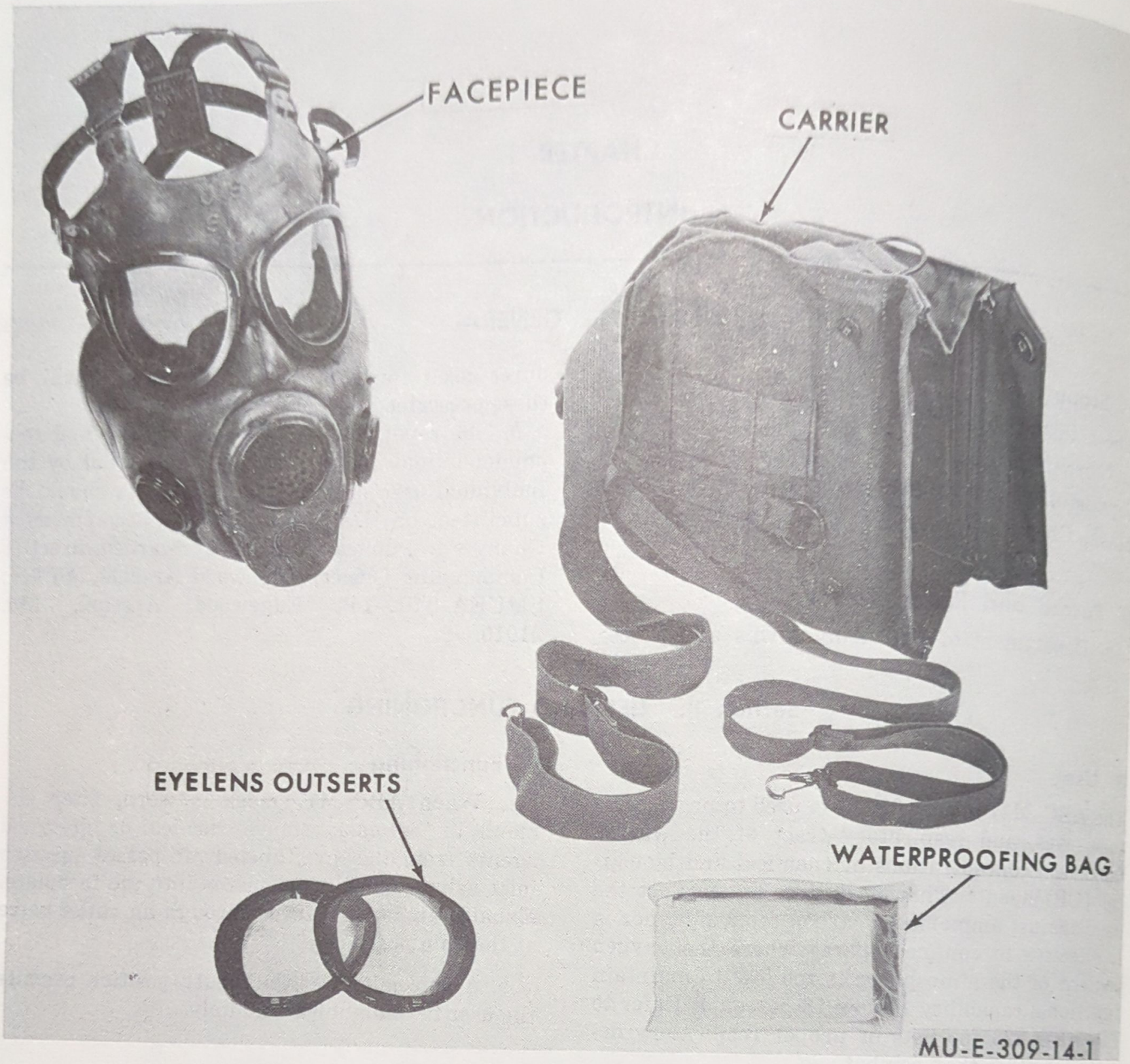

Figure 1. ABC–M17 field CB mask.

Section III. DESCRIPTION

5. General

a. ABC–M17 masks are issued in three sizes, small, medium, and large. The size of the mask can be identified by the markings on the forehead section of the faceblank and on the inside of the nose cup. A small mask is marked *S* on the faceblank and *M* on the nose cup. The medium mask is marked *M* on both the faceblank and the nose cup. A large mask is marked *M* on the faceblank and *L* on the nose cup.

b. The major components of the ABC–M17 mask (fig. 1) are the facepiece (generally referred to as the mask), carrier, eyelens outserts, and waterproofing bag.

6. Description

a. Facepiece (fig. 2).

(1) *Faceblank.* The following are molded into the rubber faceblank: filter-element pouches, flap-button button holes, clip-buckle tabs, temple-pin lugs, deflector tubes, and openings for eyelenses, nose cup, voicemitter-outlet valve assembly, and filter-element connector.

(2) *Eyelenses.* Clear plastic eyelenses are sealed in the faceblank openings by metal eye-rings.

(3) *Crimping ring.* A metal crimping ring seals the voicemitter-outlet valve assembly and nose cup to the faceblank. Two studs on the

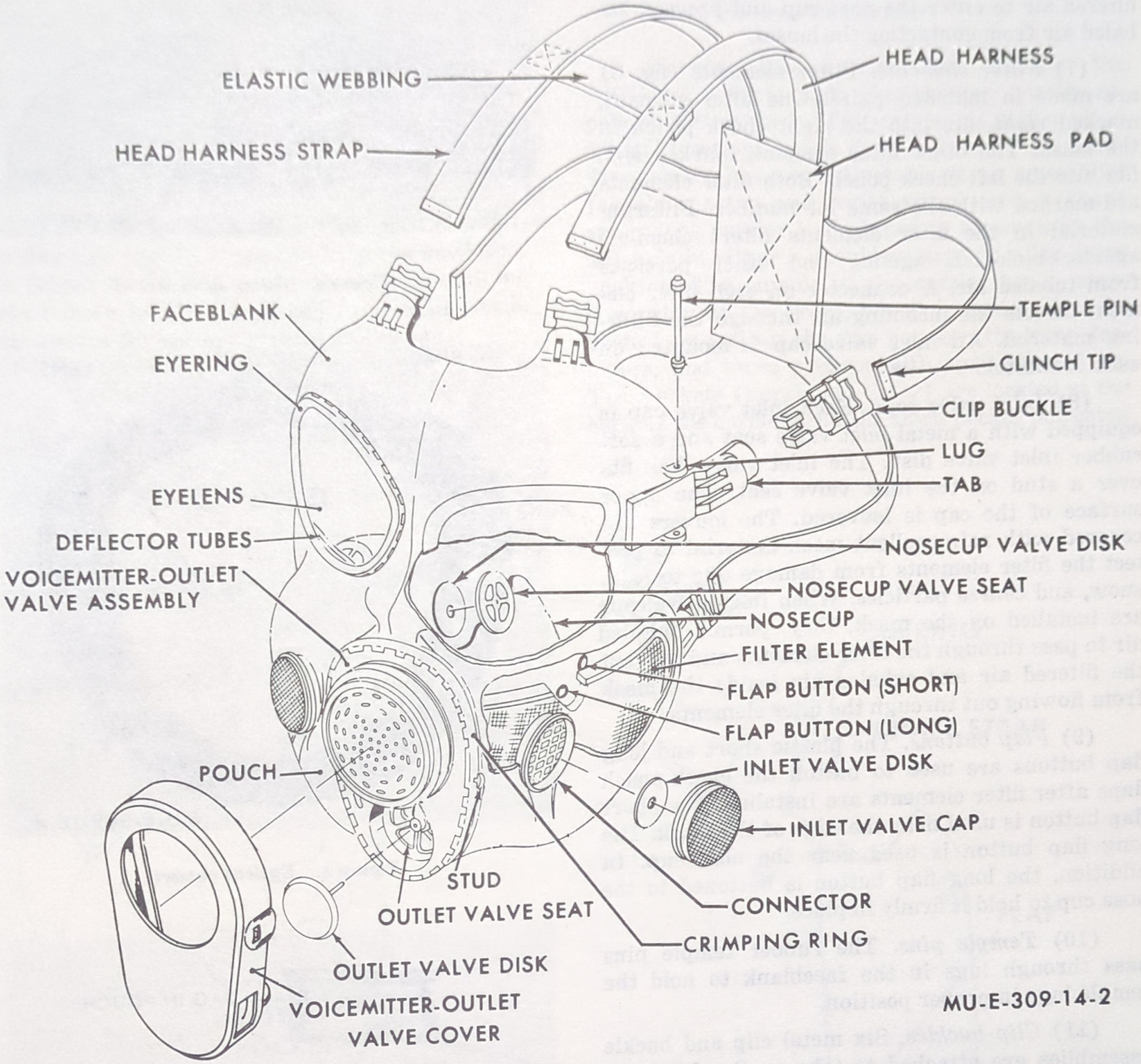

Figure 2. Facepiece, exploded view.

crimping ring hold the voicemitter-outlet valve cover in place.

(4) *Voicemitter-outlet valve assembly.* The voicemitter-outlet valve assembly consists of a voicemitter and an outlet valve with an outlet valve disk.

(5) *Voicemitter-outlet valve cover.* The rubber voicemitter-outlet valve cover fits over the voicemitter-outlet valve. The cover surrounds the outlet valve disk with an atmosphere of uncontaminated exhaled air. Air is expelled from the mask through air passages in the bottom of the cover. A lifting tab at the bottom of the cover allows the lower portion of the cover to be lifted without removing the cover. An opening on the face of the cover fits around the voicemitter. Two openings at the sides of the cover fit over studs on the crimping ring.

(6) *Nose cup.* The soft rubber nose cup fits over the nose and mouth. The nose cup diverts most of the exhaled air toward an outlet valve to help prevent fogging of the lenses. Plastic flap buttons fasten the sides of the nose cup inside the mask. Two nose cup valve assemblies, each consisting of a metal nose cup valve seat and a soft rubber nose cup valve disk, are installed in the

nose cup. The nose cup valve assemblies permit filtered air to enter the nose cup and prevent exhaled air from contacting the lenses.

(7) *Filter elements.* Filter elements (fig. 3) are made in matched pairs. One filter element, marked *right,* fits into the right cheek pouch in the mask. The other filter element, marked *left,* fits into the left cheek pouch. Both filter elements are marked with the same lot number. Filtering material in the filter elements filters chemical agents, biological agents, and other particles from inhaled air. A connector on each filter element directs the incoming air through the filtering material. An inlet valve cap is mounted on each connector.

(8) *Inlet valve caps.* Each inlet valve cap is equipped with a metal inlet valve seat and a soft rubber inlet valve disk. The inlet valve disk fits over a stud on the inlet valve seat. The upper surface of the cap is louvered. The louvers are covered with rain-repllent mesh material to protect the filter elements from damage due to rain, snow, and coarse particles. When inlet valve caps are installed on the mask, they permit inhaled air to pass through the filter elements and prevent the filtered air and exhaled air inside the mask from flowing out through the filter elements.

(9) *Flap buttons.* The plastic short and long flap buttons are used to button the cheek-pouch flaps after filter elements are installed. The short flap button is used near the edge of the mask. The long flap button is used near the nose cup. In addition, the long flap button is buttoned to the nose cup to hold it firmly in place.

(10) *Temple pins.* The rubber temple pins pass through lugs in the faceblank to hold the temple lugs in proper position.

(11) *Clip buckles.* Six metal clip and buckle assemblies are attached to tabs on the facepiece (two at forehead, two at temple, and two at cheek positions).

b. Head Harness. The head harness (fig. 2) consists of six straps of elastic webbing sewed to a rectangular head pad. The ends of the head harness straps are equipped with metal clinch tips to prevent raveling of the elastic webbing. Ends of the head harness straps pass through buckles at the forehead, temple, and cheek positions. Elastic webbing connects the two forehead straps and holds them in proper alinement when the facepiece is worn. (The forehead straps may be attached with the elastic webbing either over or under the straps.) The buckles permit adjusting the straps to obtain proper fit of the facepiece.

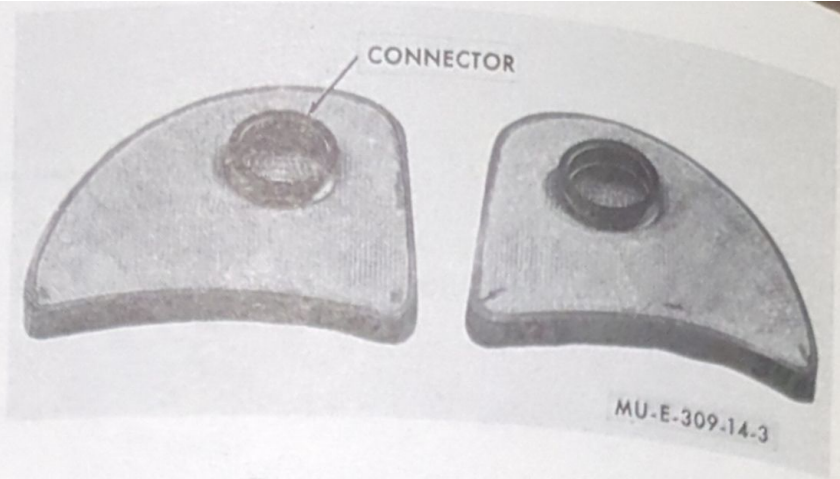

Figure 3. Filter elements.

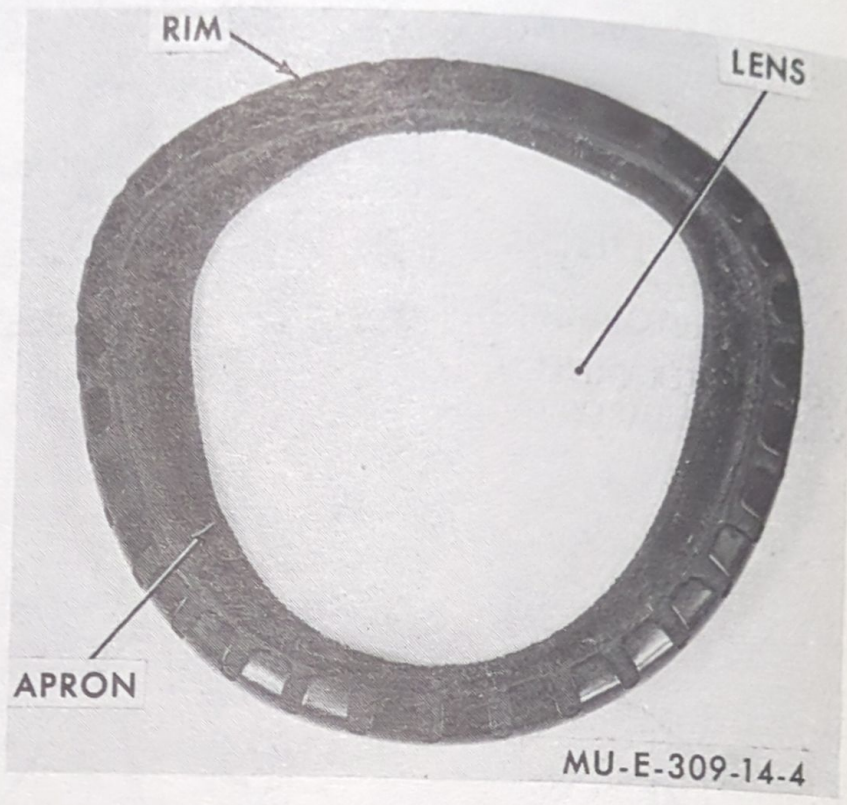

Figure 4. Eyelens outsert.

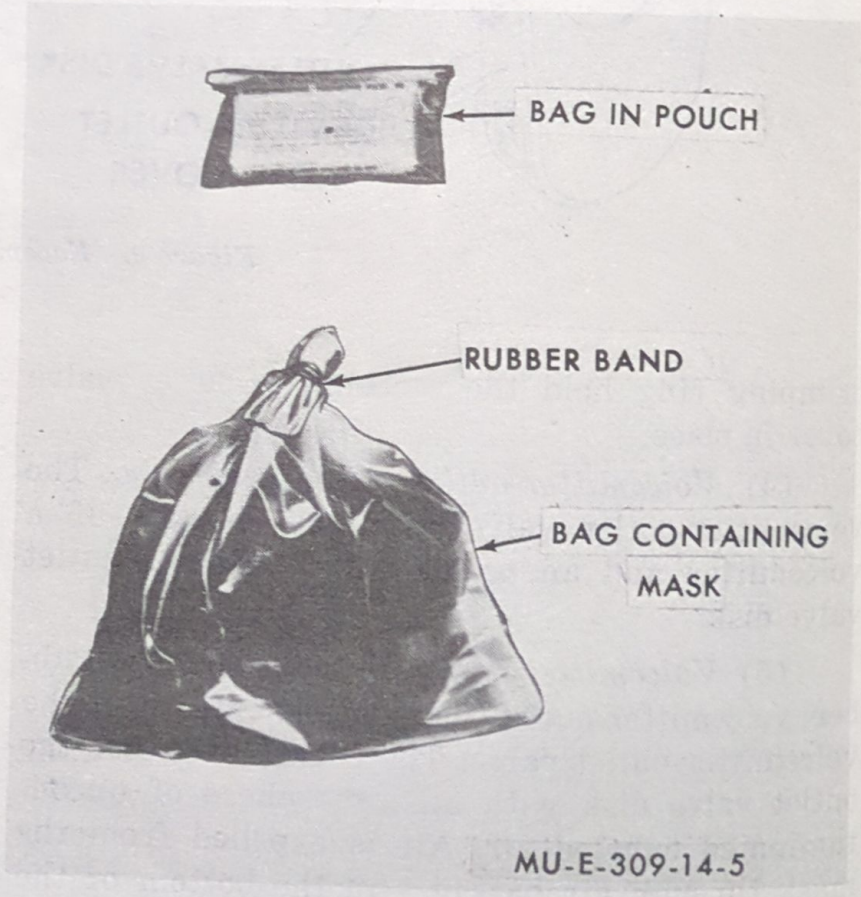

Figure 5. M1 waterproofing bag.

c. Eyelens Outserts. A pair of identical eyelens outserts (fig. 4) is packaged in a plastic pouch. The plastic eyelens outsert is seated in a soft rubber apron that fits over the eyering (fig. 2). The rim of the apron fits snugly behind the eyering. When the mask is issued, the outserts are removed from the pouch and mounted on the mask (para 32*a*). The pouch may be discarded.

d. M1 Waterproofing Bag. The plastic waterproofing bag (fig. 5) is used to keep the mask dry. The folded bag and a small envelope containing three rubber bands are packed in a small pouch. Instructions for use are printed on the bag.

NOTE

An M1A1 (M1E1) CB mask waterproof bag (para 11) is issued as an accessory for use in hot wet climates, when authorized by the area commander.

e. Carrier. The carrier (fig. 6) for the ABC–M17 mask is made of mildewproof water-repellent cotton duck. The carrier is stiffened at critical locations and is lined to protect the mask. The carrier has two adjustable strap assemblies (shoulder strap and waist strap) and a chape strap. The carrier is designed to be worn on the left side in either a shoulder-carry or a leg-carry position. The outside of the carrier has a snap-down flap at the front, which is designed to be opened by pulling the flap between the snap fasteners, and three pockets with snap-down flaps. Two pockets (upper and lower) are located at the back of the carrier, and the third pocket is located

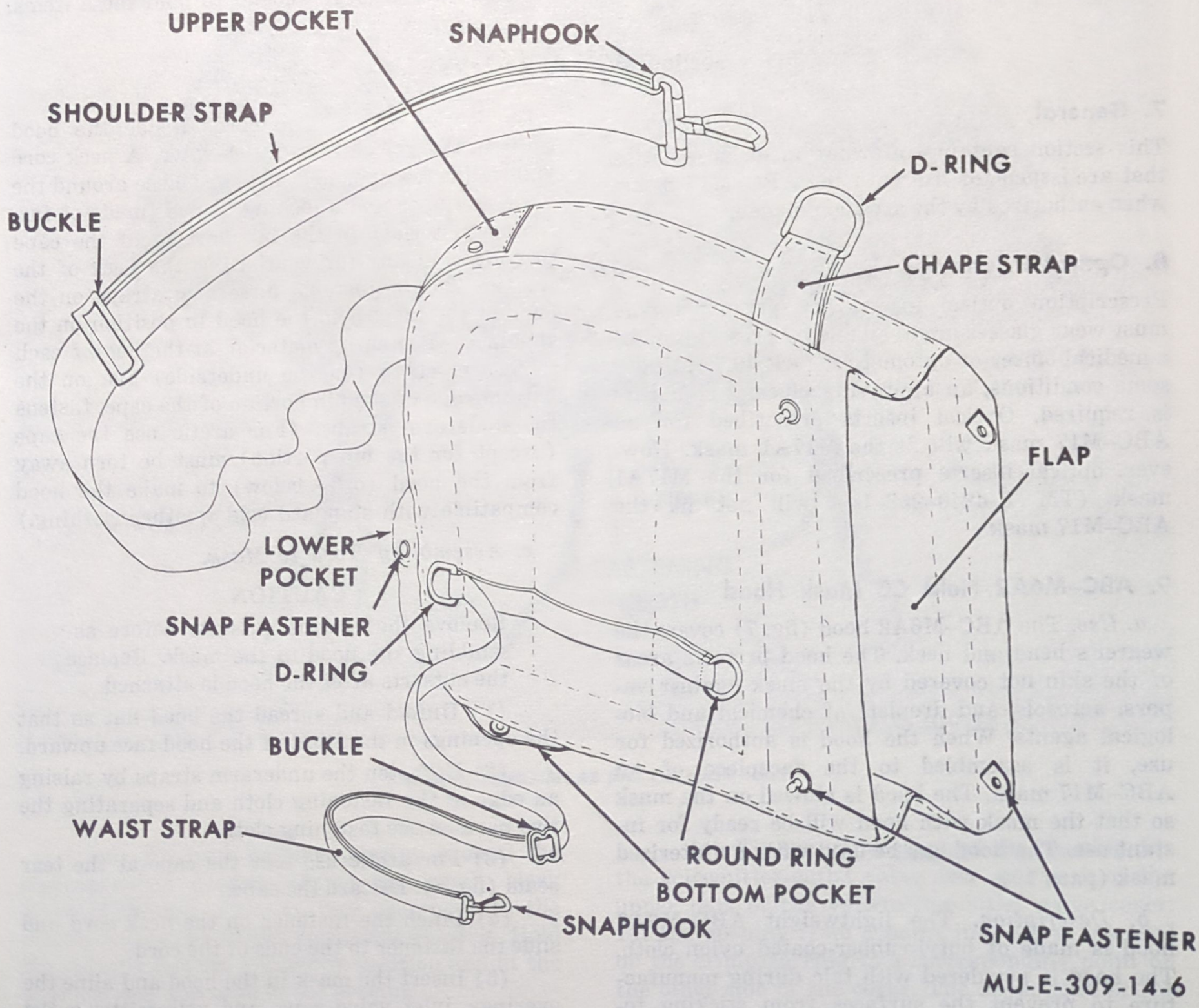

Figure 6. Carrier.

on the bottom. There is an open pocket inside the carrier, at the back.

(1) *Straps.* The straps are made of cotton webbing. Buckles on the shoulder and waist straps are used to adjust the straps. When the carrier is worn in the shoulder-carry position, the snaphook on the shoulder strap is fastened to a D-ring on the chape strap. A snaphook on one end of the waist strap is fastened to a round ring on the waist strap. When the carrier is worn in the leg-carry position, the shoulder strap serves as a waist strap. The waist strap then serves as a leg strap. The shoulder strap fits around the waist, and the snaphook at the end of the strap is fastened to the D-ring on the chape strap. The snaphook on the waist strap goes through the round ring that is attached to the waist strap. The waist strap fits around the thigh, and the snaphook is fastened to the D-ring at the end of the waist strap.

(2) *Pockets.* When the mask is issued, the eyelens outserts are in the inside pocket of the carrier and the waterproofing bag is in the lower back pocket. The waterproofing bag may be placed in the inside pocket after the eyelens outserts are installed on the mask. When automatic atropine injectors (FM 21–11) are issued, they are placed in the upper pocket and an M13 individual decontaminating and reimpregnating kit (TB 3–4230–207–10) is placed in the lower pocket. A book of ABC–M8 VGH chemical agent detector paper (TM 3–6665–253–12) may be placed in the lower pocket or in the pocket inside the carrier. The preferred location for the M1 waterproofing bag, M8 paper, and M13 kit is in the lower pocket, if the pocket is large enough to hold these items.

Section IV. Accessories

7. General

This section contains information on accessories that are issued for use with the ABC–M17 mask, when authorized by the area commander.

8. Optical Inserts

Prescription optical inserts for personnel who must wear glasses are available by prescription of a medical officer or optometrist (AR 40–3). Under some conditions, an approving officer's signature is required. Optical inserts prescribed for an ABC–M17 mask will fit the M17A1 mask. However, optical inserts prescribed for the M17A1 mask (TM 3–4240–258–14) will not fit the ABC–M17 mask.

9. ABC–M6A2 Field CB Mask Hood

a. Use. The ABC–M6A2 hood (fig. 7) covers the wearer's head and neck. The hood protects areas of the skin not covered by the mask against vapors, aerosols, and droplets of chemical and biological agents. When the hood is authorized for use, it is assembled to the facepiece of an ABC–M17 mask. The hood is stowed on the mask so that the mask with hood will be ready for instant use. The hood can be used with a winterized mask (para 10).

b. Description. The lightweight ABC–M6A2 hood is made of butyl-rubber-coated nylon cloth. The hood is powdered with talc during manufacture to prevent the surfaces from sticking together. Openings in the front of the hood fit around the eyerings, the inlet valves, and the voicemitter-outlet valve. Two cords inside the hood tie it to the voicemitter-outlet valve. A neck cord and a slide fastener hold the hood close around the neck. A zipper and a locking device (made of fastening material) in the bib portion of the cape provide a means for ventilating the neck of the wearer. Two adjustable underarm straps on the cape of the hood hold the hood in position on the shoulders. Fastening material, at the end of each underarm strap (on the underside) and on the bottom edge of the bib portion of the cape, fastens the underarm straps. (For arctic use the cape (except for the bib portion) must be torn away from the hood (*c*(3) below) to make the hood compatible with standard cold weather clothing.)

c. Assembling Hood to Mask.

CAUTION

Remove the eyelens outserts before assembling the hood to the mask. Replace the outserts after the hood is attached.

(1) Unfold and spread the hood flat so that the openings in the front of the hood face upward.

(2) Unfasten the underarm straps by raising an edge of the fastening cloth and separating the two parts of the fastening cloth.

(3) For arctic use tear the cape at the tear seam (fig. 8). Discard the cape.

(4) Pinch the fastener on the neck cord and slide the fastener to the ends of the cord.

(5) Insert the mask in the hood and aline the eyerings, inlet valve caps, and voicemitter-outlet valve with their respective openings in the hood. Attach the hood as follows:

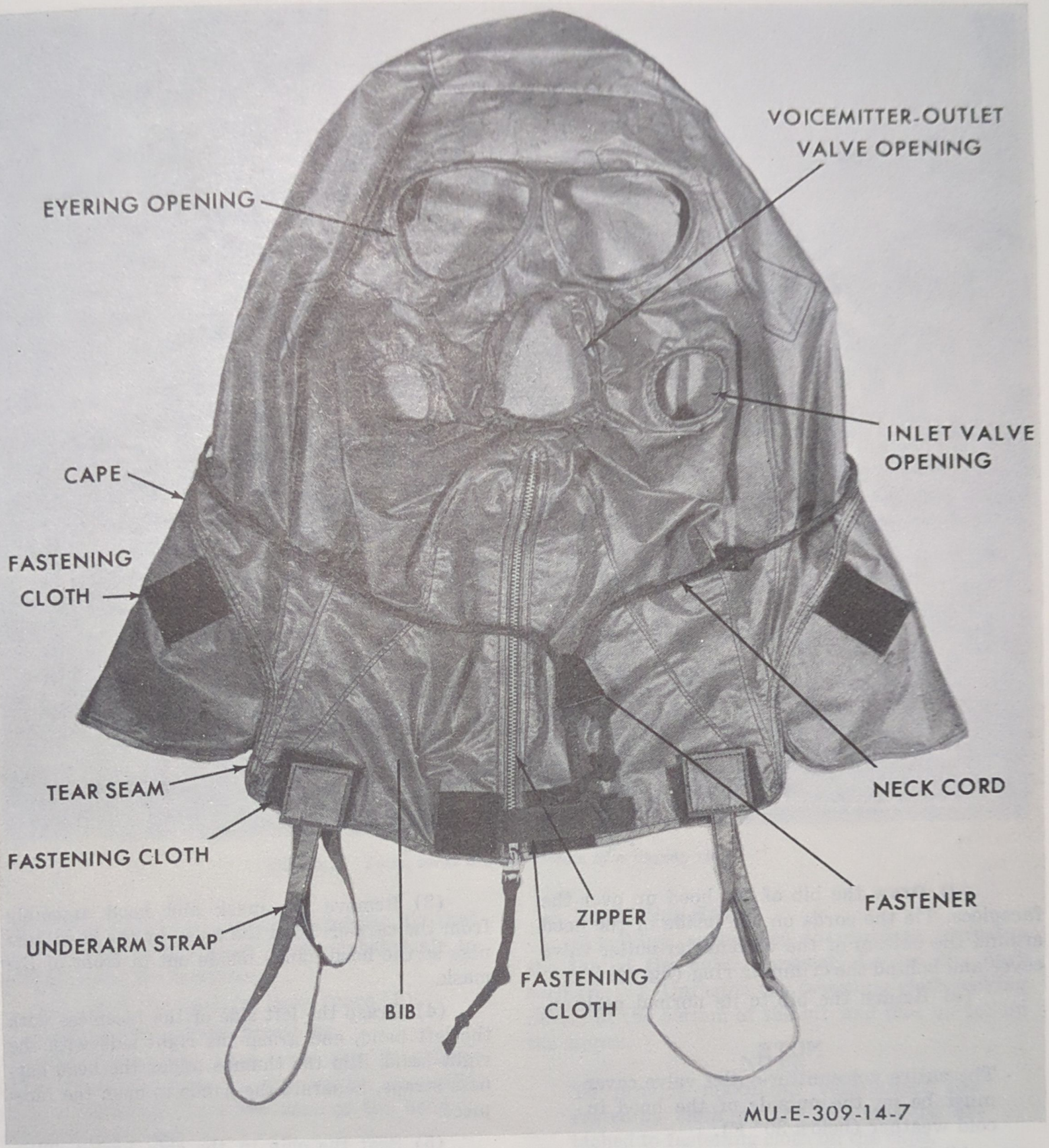

Figure 7. ABC–M6A2 field CB mask hood.

(*a*) Fit each eyering opening around the corresponding eyering. Aline the small black mark at the top of the eyering opening with the dimple on the top of the respective eyering. Hold the opening and the eyering in position and fit the opening over and back of the eyering.

(*b*) Fit each inlet valve opening around the corresponding inlet valve cap.

(*c*) Fit the upper part of the opening for the voicemitter-outlet valve over and back of the upper part of the voicemitter-outlet valve cover. Fit the opening from a point just below the stud on the crimping ring to a corresponding point on the other side of the cover. The lower part of the opening now stretches across the outlet valve cover.

Figure 8. Tearing off cape.

(*d*) Draw the bib of the hood up over the facepiece. Tie the cords on the inside of the hood around the bottom of the voicemitter-outlet valve cover and behind the crimping ring (fig. 9).

(*e*) Return the bib to its normal position.

NOTE

The entire voicemitter-outlet valve cover must be on the outside of the hood in cold weather (below 30° F).

(*f*) Raise the back of the hood up and over the face of the mask. Lift the mask by the head harness and allow the hood to hang inside out in front of the mask. Gather the bottom of the hood to one side of the facepiece and stow the mask and hood assembly in the carrier (fig. 10).

d. Donning Mask and Hood Assembly.

(1) Stop breathing.

(2) Remove the headgear and place it between the knees.

(3) Remove the mask and hood assembly from the carrier. Hold the mask by the head harness so the hood hangs inside out in front of the mask.

(4) Grasp the left side of the facepiece with the left hand, and grasp the right side with the right hand. Slip the thumbs under the head harness straps. Separate the hands to open the facepiece.

(5) Seat the chin in the chin pocket. Then slip the head harness straps over the head to pull the mask up onto the face. (Do not slip the head harness over the head and then pull the mask down over the face.)

(6) Make sure that the head harness straps lie flat against the head.

(7) Pull the back of the hood over the head so that the hood covers the head.

(8) Clear the mask (fig. 20). Place the palm of one hand over the openings in the bottom of the

Figure 9. Tying cords around bottom of crimping ring.

voicemitter-outlet valve cover. Expel the air that has been held in the lungs. Force exhaled air to escape around the facepiece.

(9) Check the mask for leaks (para 18).

(10) Resume normal breathing.

(11) Drape the cape over the shoulders. (This does not apply in the arctic; see *c*(3) above.) Make sure that the back of the hood is under the neck cord.

(12) Use the neck cord fastener to tighten the neck cord until the hood is held snugly around the neck.

(13) Pass the straps under the arms. Fasten the ends of the straps to the bib by pressing the two parts of the fastening material together. Adjust the straps as necessary to obtain a comfortable fit. (This does not apply in the arctic; see *c*(3) above.)

(14) Don the headgear.

(15) Close the carrier.

e. Ventilating Hood.

(1) When authorized to ventilate, unfasten the top of the outer garment. Loosen the neck cord (fig. 7). Unfasten the fastening cloth locking device at the bottom of the bib and pull up tab on the zipper.

NOTE

To provide maximum ventilation, the fastening cloth on the bib may be attached to fastening cloth on the cape.

(2) When warning of an impending CB agent attack is received, pull the bib edges away from the cape and close the zipper as quickly as possible. Fasten the fastening cloth locking device to hold the zipper tab in place. Fasten the outer garment. Tighten the neck cord.

f. Removing Mask and Hood.

(1) Loosen the neck cord. Close the zipper and fasten the fastening cloth locking device.

(2) Unfasten the shoulder straps.

Figure 10. Stowing mask and hood in carrier.

(3) Remove the headgear and place it between the knees.

(4) Draw the back of the hood up and over the head.

(5) Grasp the facepiece at chin position and with a downward, outward, and upward motion, remove the mask.

(6) Don the headgear.

(7) Lift the mask by the head harness and allow the hood to hang inside out in front of the mask.

(8) Gather the bottom of the hood to one side of the facepiece. Stow the mask and hood in the carrier (fig. 10).

(9) Close the carrier.

10. ABC–M4 Field CB Mask Winterization Kit

a. Use. The ABC–M4 kit (fig. 11) is worn on the mask under arctic conditions. It prevents frost accumulations on the inlet valve caps.

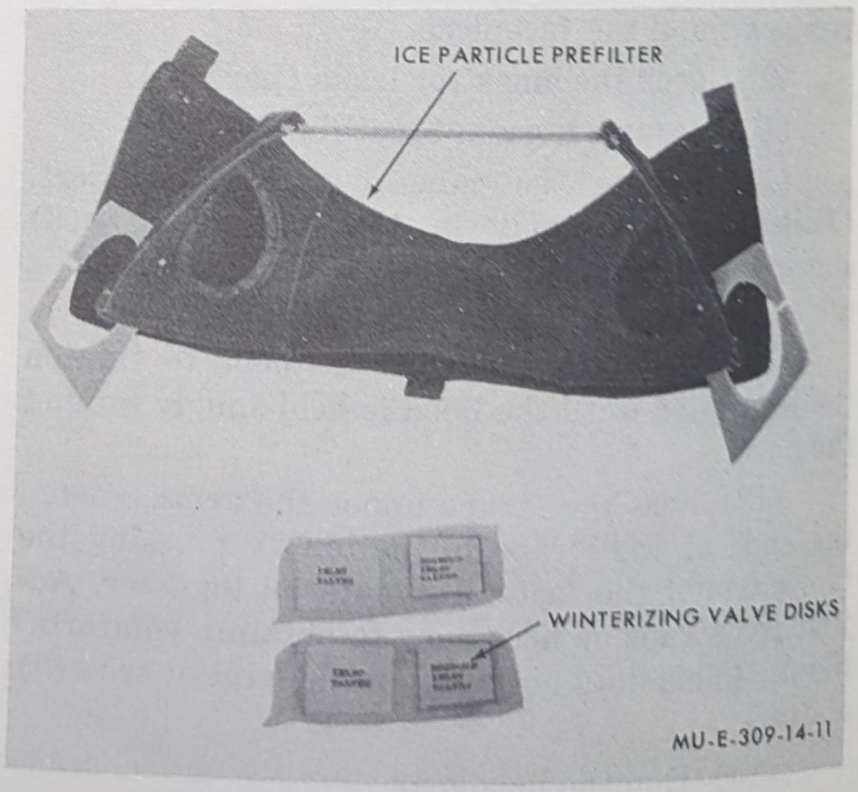

Figure 11. ABC–M4 field CB mask winterization kit.

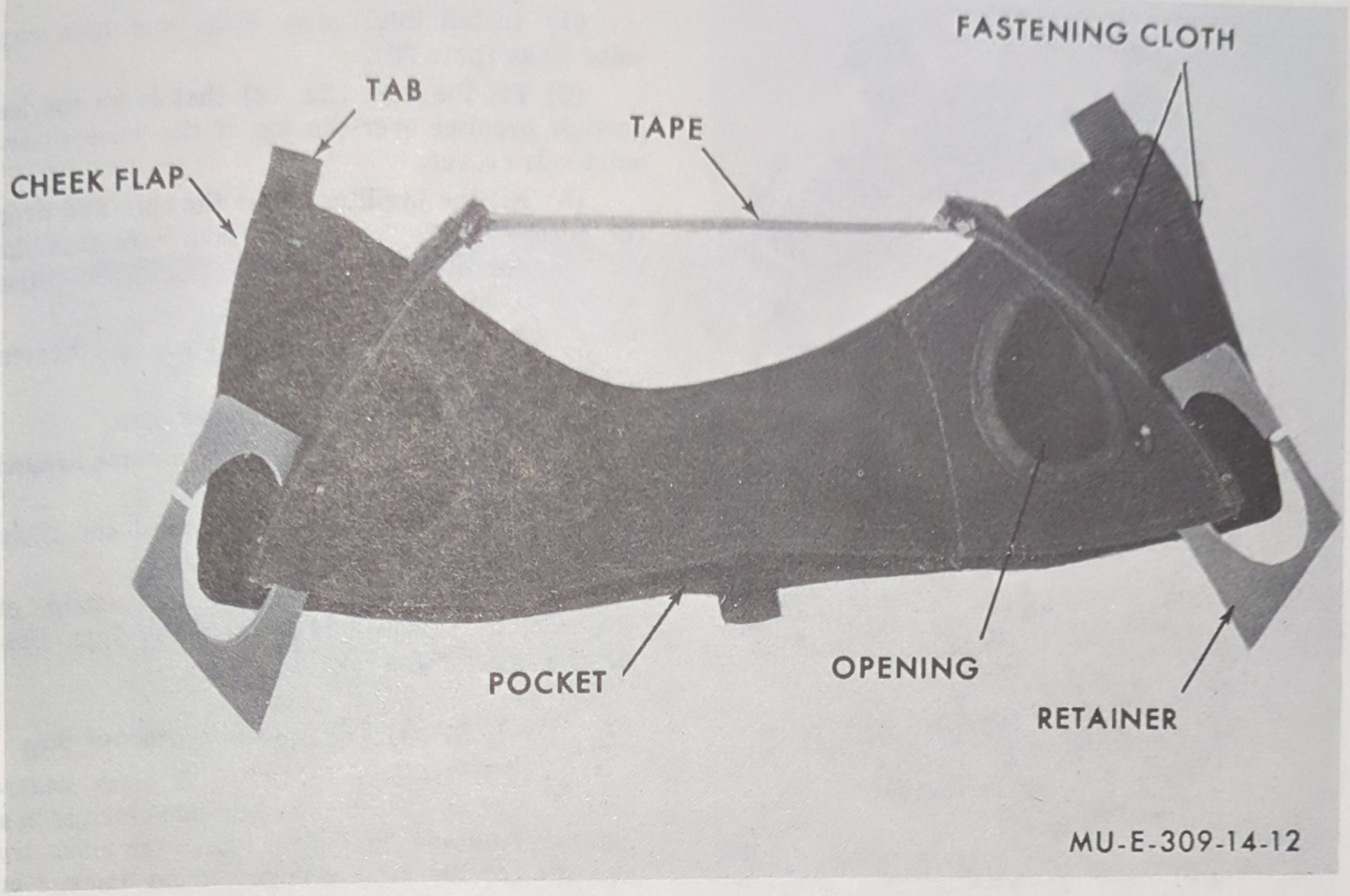

Figure 12. Ice particle prefilter.

b. Description.

(1) The ABC–M4 kit consists of an ice particle prefilter and two packets of winterizing valve disks.

(2) The ice particle prefilter (fig. 12) is made of two pieces of cloth. One piece of cloth is cotton duck; the other is knitted nylon fleece. The two pieces are sewed together to form a pocket and two cheek flaps; fastening material is used to fasten the pocket and cheek flaps. Three tabs serve as grips to unfasten the pocket and cheek flaps. Two openings in the cotton duck material, two plastic retainers, and a length of cotton tape keep the prefilter in position on the mask. The openings and retainers fit around the inlet valve caps, and the cotton tape fits over the top of the voicemitter-outlet valve cover. The cheek flaps cover the inlet valve caps. The prefilter can be worn over the hood when the hood is assembled to the mask.)

(3) Each packet contains two inlet valve disks and two nose cup valve disks (fig. 13). The disks are made from a special rubber compound to withstand the effects of extreme cold.

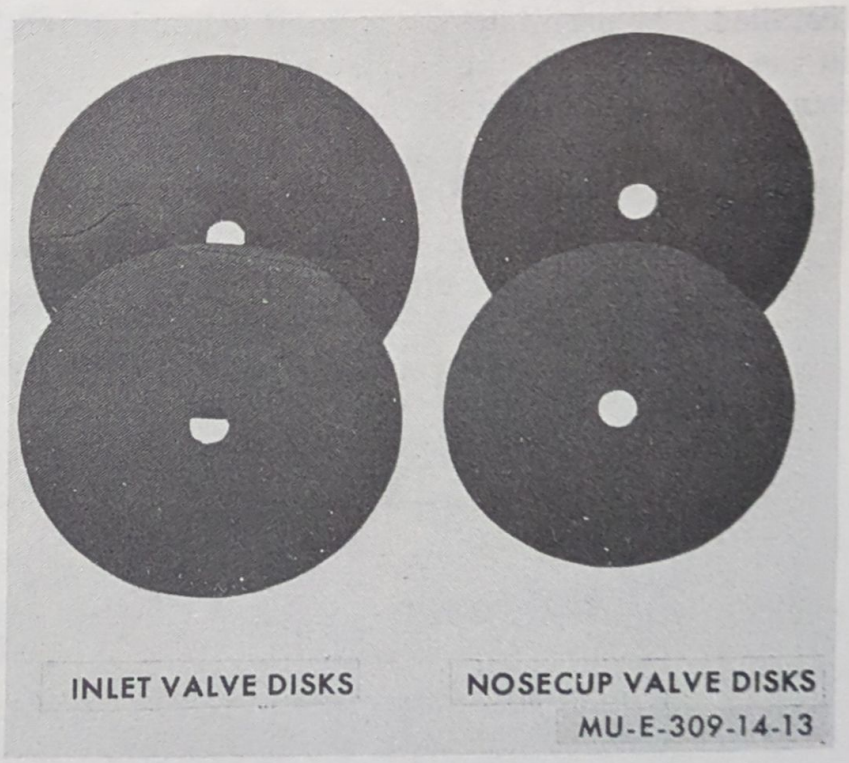

Figure 13. Winterizing valve disks.

c. Winterizing Mask. When operating under arctic conditions, install winterizing valve disks (fig. 13) in the mask and assemble the ice particle prefilter (fig. 12) to the mask (fig. 14). Do not remove the winterizing valve disks once they are

Figure 14. Ice particle prefilter assembled to mask.

installed. The prefilter may be removed and stored in the pocket inside the carrier when the ambient temperature rises above freezing.

NOTE

Before winterizing the mask, be sure that the eyelens outserts are seated in the correct position over the eyelenses.

(1) Install inlet valve disks and nose cup valve disks (para 29).

(2) Fit the tape (fig. 12) that is on the ice particle prefilter over the top of the voicemitter-oulet valve cover.

(3) Fit the prefilter under the chin and over the cheeks of the facepiece. Make sure that the chin portion of the prefilter is back of the outlet valve cover and under the lifting tab.

(4) Pull the tabs out and down to unfasten the cheek flaps.

(5) Rotate the retainers up and back.

(6) Fit the openings in the prefilter around the inlet valve caps.

(7) Rotate the retainers forward and down and fit them around the inlet valve caps.

(8) Slide the fingers up over the outside of the prefilter. This will raise the cheek flaps. Fasten the cheek flaps.

11. M1A1 (M1E1) CB Mask Waterproof Bag

a. Use. The M1A1 (M1E1) CB mask waterproof bag (figs. 15 and 16) is intended for use in a hot, wet climate. The bag will keep the mask dry and protect the filter elements from damage by water. Instructions for use are printed on the bag.

b. Description. The plastic waterproof bag has a roll-down snap-fastened closure at the top. A flat sleeve is issued with the bag.

c. Storing Bag in Carrier. Remove the sleeve from the bag. Roll the bag from the bottom up. Slide the bag into the sleeve. Bend the bag into a U-shape (fig. 17) and store it in the back of the carrier. The sleeve will then conform to the shape of the back of the carrier.

Figure 15. M1A1 (M1E1) waterproof bag.

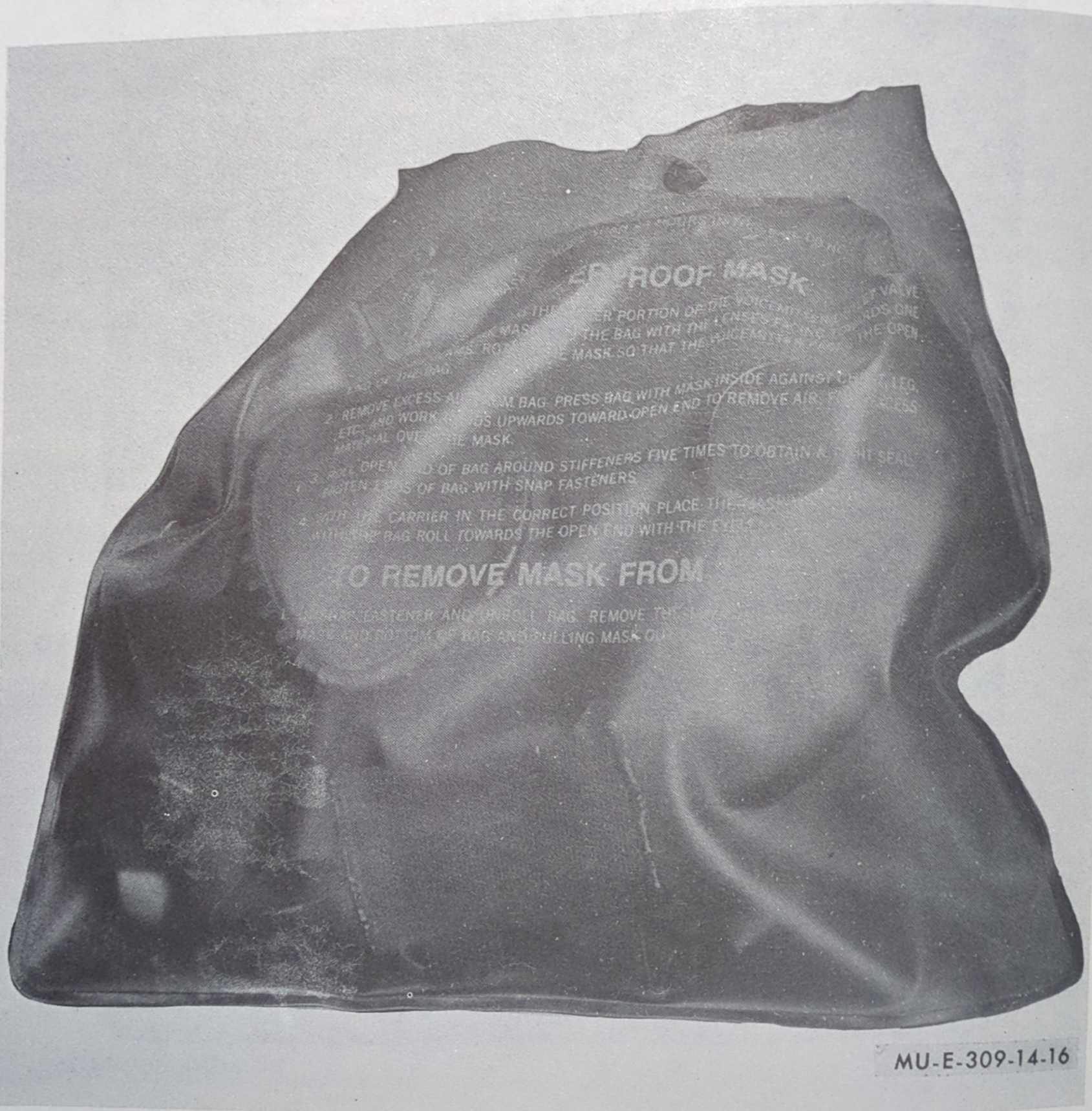

Figure 16. Waterproof bag containing mask.

Figure 17. Bending bag for storage in carrier.

CHAPTER 2

OPERATING INSTRUCTIONS

Section I. HANDLING MASK

12. General

With reasonable care and attention, the ABC–M17 mask will have long life because it is designed to withstand the wear and tear of field service. There is, however, always danger of mechanical damage to rubber, metal, or plastic parts resulting from excessive rough handling.

a. Install eyelens outserts when the mask is issued. Keep them on to avoid scratching the lenses of the mask and to protect the lenses from damage by flying debris. Keep hands off the lenses to prevent oily smudges, which may impair vision when the mask is worn.

b. When the mask is not being worn, store it in a cool dark place. Do not store other items on top of the mask. (A mask that has been stored at temperatures below —25° F will stiffen, but it can be donned. When warmed to above freezing temperatures, the mask will regain its original flexibility.)

13. Stowing Mask in Carrier

CAUTION

Store only authorized items in the carrier.

a. When not using the mask, stow it in the carrier. Keep the interior of the carrier free from sand or grit. Abrasive material will scratch the eyelens outserts and may prevent proper functioning of the valves. Be sure that the mask is free of oil or organic solvents and is dry before stowing it in the carrier.

b. Place the mask in the carrier so that the lower portion of the mask rests on the bottom of the carrier and the voicemitter-outlet valve faces toward the carrier opening (fig. 18). This also applies when the hood is assembled to the mask (para 9*c*).

c. Close the carrier.

14. Waterproofing Mask

a. Use a waterproofing bag (para 6*d* or 11*a*) to keep the mask dry when required by climate and operational conditions. Do not use the waterproofing bag for any other purposes than keeping the mask dry.

b. Follow the instructions on the bag to waterproof the mask. Place the waterproofed mask in the carrier as shown in figure 18.

c. If moisture is detected inside the waterproofing bag, remove the mask from the bag. Wipe moisture from the mask and inside the bag, or air-dry the mask and bag, if conditions permit. Replace the mask in the bag, if warranted by climate and other conditions. If the bag is not to be used, fold or roll it and replace it in the pouch or sleeve. Store bag in the carrier (para 6*e* or 11*c*).

15. Identifying an Individual's Mask

a. A mask will be used only by the individual to whom it is issued and fitted. Since neither the mask nor the carrier will be marked with the name of the individual (AR 746–10), the individual's mask may be identified by code numbers or letters marked on a tag or removable tape. The date the mask was tested and fitted to the individual may be used as part of the identification code.

b. Each unit will devise its own code. Take care not to include any designations that may identify the parent organization. The code should not be similar to the code of a neighboring unit.

c. If the unit masks are stored in a permanent shipping-storage box, its compartments should be labeled with the code marks.

d. If permanent shipping-storage boxes are not available, masks in unit storage should be tagged and hung by the shoulder strap or D-ring of the carrier.

Section II. FITTING AND CHECKING MASKS FOR LEAKS

17. Fitting

a. General. Qualified personnel should supervise the initial fitting of the ABC–M17 mask. Proper fitting prevents leakage and assures a comfortable fit. When a mask is fitted properly, the nose cup will not obscure vision, the head harness straps will not cut the ears, and the bottom portion of the mask will not cut into the throat.

b. Basic Principles of Fitting. The mask must fit the contours of the face. Of the three sizes of masks, (small, medium, and large), select the size that gives the most comfortable airtight fit. Facepieces are flexible; in most cases a good fit can be obtained by adjusting the head harness straps slightly. Do not attempt to adjust a grossly misfitting mask. Major adjustments may create strain on the facepiece and cause it to leak or be uncomfortable.

c. Adjustment to Individual. Proper adjustment of the mask is the responsibility of the wearer. In a training situation, however, this operation will be supervised and checked by qualified personnel. The tension on the head harness straps must be equal to prevent leakage and to avoid pressure at the temples and general discomfort to the wearer. Adjust the straps as follows:

(1) Hold the mask firmly against the chin with one hand.

(2) Center the head harness pad in the middle of the back of the head. Hold the pad in place with the other hand.

(3) Remove the hand from the chin position and adjust the forehead straps. (The straps are best adjusted by a rapid pull or jerk, rather than by a steady pull.)

(4) Tighten each cheek strap until the straps are moderately and evenly tightened.

(5) Remove the hand from the head harness pad and adjust the temple straps to moderate tightness. Temple straps should clear the tops of the ears. Buckles shoud lie flat, and straps should form a straight line with the tabs.

d. Checking Fit.

(1) Examine eye positions to see that the pupils of the eyes are near the centers of the lenses.

(2) See that the mask does not fit so tightly that pressure on the flesh around the eyes partly closes them.

(3) Check to see that the nose cup does not press painfully on the nose.

(4) Be sure that the edge of the mask does not touch the ears or cut into the throat. Proper fit is attained when the mask comes well up on the forehead and the edge of the facepiece is within 1 inch of the ears.

(5) If slight gaps or channels are noted, carefully readjust the head harness.

(6) If proper fit cannot be obtained, try a mask of another size.

18. Checking for Leaks

a. General. To protect the wearer, the mask must be checked for leaks when it is fitted and each time that it is donned. Before checking for leakage, make sure that the filter elements are positioned properly in their pouches, the inlet valve caps are in place, and the mask has been fitted properly.

(1) Press the palms of the hands firmly over the inlet valve caps (fig. 19). Do not press so hard that the facepiece will be distorted and will leak around the edges. Inhale lightly and hold the breath for 10 seconds. If the facepiece tends to collapse and remain collapsed during this period, an effective airtight seal is indicated. If you inhale too strongly, you may close a hole that would admit contaminated air when breathing normally.

(2) If the facepiece does not collapse and remain collapsed, leakage is indicated. Locate the leak and eliminate the cause. If it is not possible to locate the leak or to correct it, replace the mask.

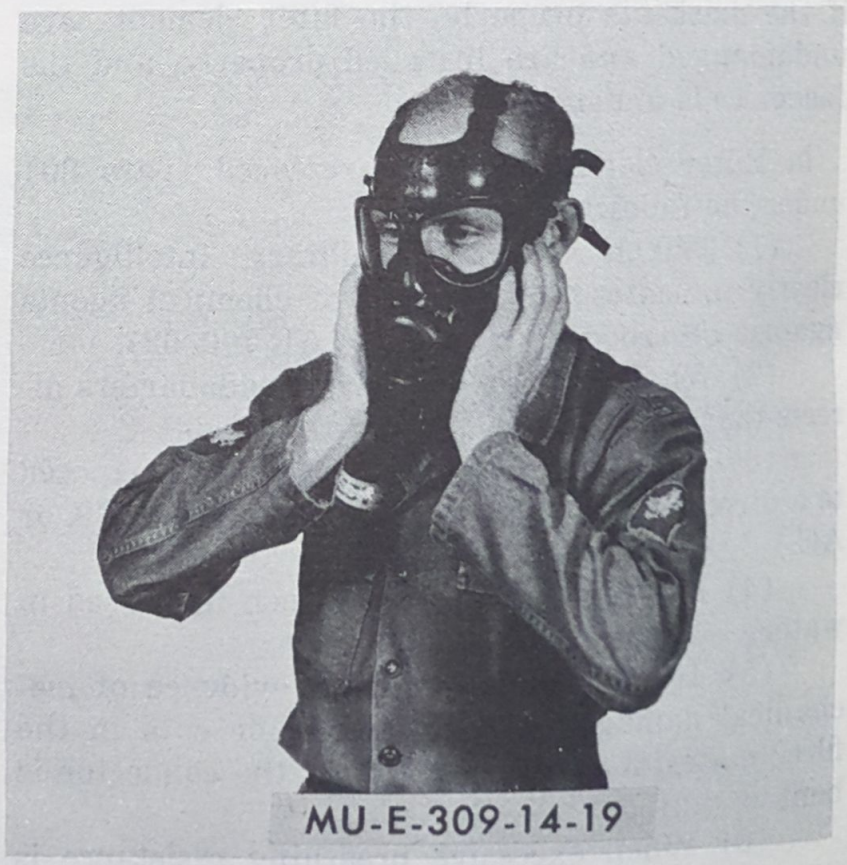

Figure 19. Checking for leaks.

b. Leakage Around the Edges. Leakage around the edges of a facepiece is caused by improper adjustment of the head harness or by a mask of improper size. Visual inspection will usually disclose a bulge at the edge of the mask where it is leaking. The wearer may be able to locate the point of leakage by the feel of incoming air.

(1) To stop leakage at the cheek, lift the head harness pad higher on the head and tighten the forehead straps.

(2) To stop leakage at the temple, tighten both the forehead and the temple straps.

(3) To stop leakage at the forehead, tighten the temple straps.

(4) To stop leakage at the throat or under the chin, readjust the mask by grasping the eyerings and lifting the mask slightly higher on the face so that the chin is seated firmly in the chin pocket. Tightening the cheek straps may also help stop leakage at the throat or under the chin.

(5) If the mask still leaks around the edges, fit a mask of another size.

c. Outlet Valve Leakage. Air leaking into the mask may be caused by an outlet valve that is faulty or is held open by foreign matter or bloom (surface coating from rubber preservative). The foreign matter or bloom usually can be removed by several rapid and forceful exhalations. (Check the outlet valve disk. It may be necessary to wipe the surfaces of the disk or the valve seat with a dry, lint free, soft cloth to remove foreign matter or bloom.) A sticking disk usually can be released by massaging the disk with the finger after lifting the lower portion of the voicemitter-outlet valve cover. Replace a defective outlet valve disk (para 31).

Section III. OPERATING INSTRUCTIONS

19. General

a. Don the mask for respiratory protection when the alarm is given or when conditions are such (FM 21–41) that a toxic-agent attack is suspected.

b. Instructions for use of the mask are given below. Paragraph 9 gives instructions for using the mask when the hood is assembled to it. Paragraph 21 gives instructions for cold weather use of the mask.

20. Donning, Using, and Removing Mask

a. Donning Mask.

(1) Stop breathing.

(2) Remove the headgear and place it between the knees.

(3) With the left hand, open the carrier by pulling the flap between the snap fasteners. With the right hand, reach into the carrier, grasp the mask by the front portion of the facepiece (the area of the voicemitter-outlet valve), and withdraw the mask from the carrier.

(4) Grasp the left side of the facepiece with the left hand and grasp the right side with the right hand. Slip the thumbs under the head harness straps. Separate the hands to open the facepiece.

(5) Seat the chin in the chin pocket. Then slip the head harness straps over the head to pull the mask up onto the face. (Do not slip the head harness over the head and then pull the mask down over the face as this may result in improper seating of the mask.)

(6) Make sure that the head harness straps lie flat against the head.

(7) Clear the mask (fig. 20). Place the palm of one hand over the openings in the bottom of the voicemitter-outlet valve cover. Expel the air that has been held in the lungs. Force exhaled air to escape around the facepiece.

(8) Check the mask for leaks (para 18).

(9) Resume normal breathing.

Figure 20. Clearing mask.

(10) Don the headgear.
(11) Close the carrier.

b. Removing Mask.

(1) Remove the headgear and place it between the knees.

(2) Grasp the facepiece at the chin position. With a downward, outward, then upward motion, remove the mask.

(3) Don the headgear.
(4) Stow the mask in the carrier.
(5) Close the carrier.

Section IV. COLD WEATHER USE OF MASK

21. General

a. This section contains specific instructions for cold weather (arctic) use of the mask. These instructions are essential for the proper use and functioning of the mask under arctic conditions.

NOTE

When wearing the mask in extremely cold weather, breathing resistance may be experienced, but should be less apparent when the wearer becomes accustomed to the mask. The resistance may increase during work and may appear especially high when the wearer is fatigued.

b. Be sure that the hood (para 9) and the winterization kit (para 10) are properly assembled to the mask. The cape of the hood must be torn off (fig. 8). The winterizing valve disks must lie flat and free on the valve seats.

c. Be sure that the inlet valve caps are oriented properly (para 28*b*), the eyelens outserts are installed properly (para 32*a*), and the entire voicemitter-outlet valve cover is outside the hood.

d. During intervals between repeated use of the mask, remove the mask from the carrier. Flex or jar the mask sufficiently to remove ice and snow from all its components and accessories.

e. Warm the mask whenever opportunity permits. Do not hang the mask near heaters.

f. When indoors or in a warm location, remove the mask from its carrier and wipe it dry with a cloth. Do not use paper to wipe the mask. Be sure that the outlet valve and nose cup valves are dry. Remove any foreign matter retained in the mask after wiping it. Replace the mask in the carrier.

g. Before entering a warm area after exposure to subzero temperatures, remove all frost and snow accumulations from the ice particle prefilter, hood, and mask.

h. If possible, dry the prefilter, hood, and mask before donning the mask and reentering areas where freezing is likely to occur.

22. Donning and Removing Mask

a. Donning Mask.

(1) Stop breathing.

(2) Remove mittens and as many pairs of gloves as necessary to don the mask properly.

(3) Open the outer garment at the neck 6 to 8 inches.

(4) Don the mask and hood assembly (para 9d). Exhale slowly and lightly to clear the mask (fig. 20). Do not clear the mask by exhaling a large volume of air into the mask. The moist air will frost the lenses.

(5) If the outlet valve sticks to the valve seat, perform the following:

(*a*) Lift the voicemitter-outlet valve cover.

(*b*) Massage the valve with one finger DURING EXHALATIONS ONLY, until the valve functions without sticking to the valve seat.

(*c*) Reseat the voicemitter-outlet valve cover.

(6) When the ice particle prefilter is on the mask, unfasten the cheek flaps (fig. 12). Check the mask for leakage. Refasten the cheek flaps.

(7) Resume normal breathing.

(8) Tuck the bottom of the hood and the ends of the neck cord under the outer garment.

(9) Fasten the outer garment.

(10) Don the gloves and mittens.

b. Removing Mask. If the wearer becomes overheated in extremely cold weather, the mask should not be removed outdoors until the face and head have cooled and the accumulated perspiration transfers to the inside of the hood. A cooling off period is not required if the mask and hood assembly is removed in a warm room or outdoors at mild temperatures.

(1) Unfasten the outer garment at the neck. Remove headgear.

(2) Pinch the neck cord fastener and slide it to the ends of the cord.

(3) Brush off any snow or ice particle accumulations on the outside of the hood.

(4) Reach back and draw the back of the hood up and over the head and face. Allow the hood to hang in front of the mask.

(5) Unmask. Shake out any ice accumulations from the mask.

(6) Draw the folds of the hood to one side of the facepiece. Stow the mask and hood in the carrier. Close the carrier.

(7) Replce headgear.

(8) Fasten the top of the outer garment.

(9) Don the gloves and mittens.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

Section I. OPERATOR'S MAINTENANCE

23. General

Under the supervision of qualified personnel, the individual to whom the mask is issued must perform the following:

a. Assemble the ABC–M6A2 field CB mask hood, when issued, to the mask (para 9*c*).

b. Assemble the ABC–M4 field CB mask winterization kit, when issued, to the mask (para 10*c*).

c. Install eyelens outserts (para 32*a*). When the eyelens outserts are installed, they remain on the mask. They may be removed temporarily while assembling the hood to the mask or while the mask is being cleaned, conditioned (para 26), or sanitized (para 27).

d. Decontaminate mask (para 25) as required.

e. Clean and condition mask (para 26) at least twice a year or more frequently if required.

NOTE

The rubber of the mask exudes a waxlike substance (bloom), which gives the facepiece a white or in some cases a rust appearance. This waxlike substance protects the rubber from deterioration. Do not clean the mask to remove only this substance.

f. Sanitize the mask (para 27) before turning it in for reissue.

g. Perform preventive maintenance checks and services (para 24).

h. Notify organizational maintenance personnel of any damage that requires repair or replacement of parts.

i. Perform any organizational maintenance that is authorized by the unit commander.

24. Preventive Maintenance Checks and Services

a. Purpose. The preventive maintenance checks and services (table 1) provide the operator with a list of maintenance services, which are designed to maintain the masks in serviceable condition. Use the list to make sure that all required maintenance is accomplished. If corrective action is not authorized at operator's level, report mask defects to organizational maintenance personnel.

b. Explanation of Columns. A number in the *Sequence No.* column indicates that the service opposite the number must be performed weekly under combat conditions. The services must be performed every 6 months under peacetime conditions or after each exercise or training mission. The number also indicates the "TM Item No." referred to on DA Form 2404 (TM 38–750).

Table 1. Preventive Maintenance Checks and Services

Operator's maintenance		Weekly schedule*	
Sequence No.	Item to be inspected	Procedure	Paragraph reference
1	Facepiece	Examine the faceblank for permanent set that may affect the fit of the mask. (Indications of permanent set are resistance to opening of the facepiece, unusual or excessive stiffness of certain areas of the faceblank, tackiness, brittleness, holes, tears, and splits.) Check for damaged or missing temple pins and flap buttons. A white or rust colored waxlike substance on the rubber is not a defect (see note, para 23*e*).	6*a*(1)

Operator's maintenance

Weekly schedule*

Sequence No.	Item to be inspected	Procedure	Paragraph reference
2	Nose cup	Examine the nose cup to see that its sides are buttoned properly. Insure that the chin portion lies over the chin stop. Check for torn buttonholes. See that nose cup valve seats have not separated from the nose cup and that nose cup valve disks are not curled. Rotate each valve disk to make sure that it is not stuck to the valve seat.	6*a*(6), 29*b*
3	Eyelenses and eyerings	Examine the eyelenses for cracks, chips, and marked discoloration that might affect vision. Examine metal eyerings for damage or corrosion.	6*a*(2)
4	Head harness	Examine the head harness for superficial dirt and mildew. Check for worn, frayed, or broken straps and for missing clinch tips. Check the straps for loss of elasticity.	6*b*
5	Clip buckles	Examine clip buckles for damage or corrosion	6*a*(11)
6	Voicemitter-outlet valve assembly and cover.	Remove the voicemitter-outlet valve cover and examine it for permanent set or other damage. Examine the voicemitter-outlet valve disk and valve seat for presence of foreign matter. Carefully remove any foreign matter with a dry, lint free, soft cloth, such as cheesecloth, FSN 8305–222–2423. (Do not use paper.) If the foreign matter cannot be removed from the valve seat with a lint free cloth, replace the mask. Check the valve disk for proper seating, damage, or distortion. Examine the diaphragm assembly, voicemitter-outlet valve frame, and crimping ring for damage or looseness which may cause leakage. See that the voicemitter-outlet valve cover is attached properly when it is replaced.	6*a*(4) and (5), 18*c*, 31.
7	Inlet valve caps	Check the inlet valve caps for proper functioning. Clear the mask. Check the inlet valve caps for leakage.	6*a*(8), 18*a*, 28, 29
8	Filter elements	Reverse the head harness over the front of the mask. Unbutton nose cup and pouch flaps. Expose top flat edge of each filter element. Then check the lot number on each filter with the listing in SB 3–30–2 to make sure that filter elements are serviceable. Make sure that filter elements are installed properly and buttoned in pouches. If the mask has been subjected to abnormal treatment (crushed or wetted). remove filter elements and inspect them for damage.	6*a*(7), 16, 30*a*(4)
9	Eyelens outserts and M1 waterproofing bag.	Inspect for damage	6*c* and *d*, 32
10	Carrier	Remove mask and contents from carrier. Inspect carrier for superficial dirt, and mildew, rips, torn straps, and missing hardware.	6*e*
11	Accessories	Inspect authorized accessories for damage that might affect their serviceability.	8 through 11

* Every 6 months under peacetime conditions or after each exercise or training mission.

25. Decontaminating Mask

a. If the mask must be decontaminated while it is being worn, use the M13 individual decontaminating and reimpregnating kit (TB 3–4230–207–10).

b. Decontaminate the mask as specified in TM 3–220, when the situation permits.

26. Cleaning and Conditioning Mask

a. Do not remove the hood if it is assembled to the mask. To clean the mask without removing the filter elements, remove the voicemitter-outlet cover, inlet valve caps, and eyelens outserts. Use extreme care in washing the mask to prevent water from wetting the filter elements. Clean the mask (and hood) inside and out. Use a clean cloth that has been dipped in warm soapy water (soap, FSN 8520–231–3006, is suitable for this purpose) and wrung almost dry, or a brush that has soft bristles (a clean paintbrush may be used). Rinse by wiping with a clean cloth that has been dipped

in warm clear water and wrung almost dry. Either wipe the facepiece with a clean lint free cloth or air-dry the facepiece. If the nose cup valve disks become detached while the mask is being cleaned, reinstall them. Reassemble the mask.

b. To clean and polish the eyelens, cleaning and polishing compound, plastic, type I (FSN 7930–634–5340), may be used.

c. Keep the inside of the carrier free of sand or grit. Abrasive material will scratch the eyelens outserts and may prevent proper functioning of the valves. If the carrier becomes soiled, clean it with a brush dipped in clear cold water.

27. Sanitizing Mask

Before turning mask in for reissue, clean and sanitize it as described below. Use only water from an approved source (potable water).

a. Remove the filter elements from the mask (para 30*a*). Set them aside so that they will not get wet or damaged.

b. Lift the eyelens outserts from the eyelenses. Clean and sanitize the eyelens outserts and the mask.

c. Completely immerse the mask and the eyelens outserts in a container of warm soapy water (do not use harsh detergents), Agitate the mask and outserts for 2 or 3 minutes.

d. Rinse the mask and outserts by immersing them in a container of clear warm water. Agitate the mask and outserts for 2 or 3 minutes.

e. Repeat *d* above by using a second container of clear water.

f. Prepare enough sanitizing solution (one tube of calcium hypochlorite (FSN 6810–266–6979) per 1 quart of water) to completely cover the mask and eyelens outserts. Stir the solution to dissolve the calcium hypochlorite.

NOTE

Calcium hypochlorite tubes from a water purification chlorination kit (FSN 6850–270–6225) may be used. Discard the kit after all of the calcium hypochlorite tubes have been used.

g. Completely immerse the mask and the eyelens outserts. Agitate them in the sanitizing solution for approximately 5 minutes.

h. Rinse the mask and eyelens outserts twice as described in *d* above. Use fresh water each time.

i. Dry all parts of the mask. Either air-dry the mask or use a clean, soft, lint free cloth.

j. Reassemble the mask.

28. Inlet Valve Caps

a. Removal. Remove each inlet valve cap (fig. 2) by grasping it with both thumbs and index fingers at opposite edges. With the thumbs only, pry the cap up and off of the connector. Lay the inlet valve caps, outside surface down, on a clean flat surface. Replace the inlet valve disks if they are damaged or missing (para 29*a*).

b. Replacement. Moisten with water all around the bead on the molded rubber collar. Hold the inlet valve cap to a light source and check to make sure that the word TOP on the cap is centered above an imaginary vertical axis of the louvers. If the word TOP is not in proper position or if it is missing, rotate the cap until the louvers are horizontal. (The light space between the louvers should diminish and disappear when the lower portion is tilted back toward the light source.) Mark the word TOP on the upper portion of the cap. Center the word over the imaginary vertical axis of the louvers. Position the inlet valve cap on the connector with the word TOP up. Engage one side of the inlet valve cap assembly beneath the flange of the connector and snap the cap into place. Repeat the procedure with the other inlet valve cap. When holding the cap to a light source, the cloth screen should be toward the observer.

29. Inlet Valve Disks and Nose Cup Valve Disks

a. Inlet Valve Disks.

(1) *Removal.*

(*a*) Remove the inlet valve caps from their connectors (para 28*a*). Place them on a flat surface with the outside surface down.

(*b*) With a fingernail, raise the edge of the disk from the valve seat. Lift the edge of the disk with the thumb and forefinger and gently pull the disk away from the stud. Stretch the hole in the disk sufficiently to remove the disk from the stud.

(2) *Replacement.*

(*a*) Lower the replacement disk to the stud and slip it over the stud. The disk must lie flat on the seat and completely cover the holes in the valve seat.

(*b*) Replace the inlet valve cap (para 28*b*).

b. Nose Cup Valve Disks.

(1) *Removal.*

(*a*) Reverse the head harness (para

30*a*(3)) to permit free access to the interior of the mask.

(*b*) Curl back the soft lip of one side of the nose cup, to more fully expose the nose cup valve and facilitate removal of the disk.

(*c*) With a fingernail, raise the edge of the disk from the valve seat. Lift the edge of the disk with the thumb and forefinger and gently pull away from the stud to stretch the hole in the disk sufficiently to remove the disk from the stud.

(2) *Replacement.*

(*a*) Hold the replacement disk between thumb and forefinger.

(*b*) Place the hole in the disk over the stud so that one portion of the circumference of the hole slips over the head of the stud. Gently pull the opposite side of the disk to stretch the hole so that it will pass completely over the head of the stud.

(*c*) Press the disk down over the valve seat so that it lies flat and can function properly.

30. Filter Elements

a. Removal.

(1) Remove the inlet valve caps (para 28*a*).

(2) Work the rubber collar from under the flange of the connector (fig. 3) on the filter element.

(3) Reverse the head harness. Loosen the buckles by holding the ends of the head harness straps (fig. 2) and lengthen the straps as much as possible. Grasp the head harness with both hands and place it over the front of the mask. To avoid distorting the facepiece, do not pull the head harness below the lenses.

(4) Unbutton nose cup and pouch flaps. Grasp the nose cup (fig. 2) near the flap button and lift it off the flap button. Unbutton the flaps on the pouches by lifting the flap off the flap buttons. Be sure that both buttons on each side of the mask are unbuttoned before performing next step ((5) below). Do not stretch the rubber any more than necessary to lift the flaps off the buttons.

(5) Remove the filter elements. Grasp the upper portion of one of the filter elements by placing four fingers on the upper portion of one of the filter elements and the thumb on the opposite side. With the other hand, grasp the outside of the facepiece between the voicemitter-outlet valve assembly (fig. 2) and the connector. Pull the filter element from the mask. Pull the second filter element from the mask in the same manner. To avoid tearing the rubber, do not stretch it any more than necessary to remove the filter elements.

b. Replacement.

(1) Determine the correct filter element for each pouch. (The filter elements are marked either right or left.) Place the elements against the outside of the mask to aline them with the contours of the cheek pouches. This will avoid attempts to place a right filter element in a left pouch, and vice versa.

(2) Spread the opening of the cheek pouch carefully by pulling the lower edge of the mask (chin stop) outward just enough to insert the filter element. Grasp the element by the square corner with the fingers on the connector side and the thumb on the opposite side. Insert the curved edge of the element in the pouch opening. (The curved edge of the filter element may be moistened with water or saliva to facilitate insertion.) With a slight turning motion, push the element up into the cheek area of the pouch. Grasp the corner of the element that is nearest the ear by pinching it through the mask. Work the element into approximately its correct location with the connector projecting through the mask. Allow the nose cup and the pouch flaps to fall back into their normal positions.

(3) Work the rubber collar under the connector flange (fig. 3). After the rubber collar is seated properly, recheck the position of the filter element in the pouch. Make any necessary adjustments. During this check see that the chin portion of the nose cup lies on top of the chin stop, so that moisture from exhaled air does not enter the pouches and damage the elements.

(4) After both filter elements are in place, button the flaps and the nose cup. Place a finger of one hand under the base of the button closest to the edge of the mask. With the other hand, slip the head of the button through the corresponding hole in the flap. Fasten the second button in the same flap in the same manner. Slip the hole in the nose cup over the inner button.

(5) Return the head harness to its normal position. Adjust straps to approximately their correct lengths.

(6) Replace the inlet valve caps (para 28*b*).

31. Outlet Valve Disk

a. Removal.

(1) Lift the lower part of the voicemitter-outlet valve cover to expose the outlet valve disk.

(2) Pinch the outlet valve disk between the thumb and forefinger and pull it from the outlet valve seat. Discard the disk.

b. Replacement.

(1) Cut the tail of a new outlet valve disk

back almost to the tapered end of the cone. Moisten the cone and the stem of a new outlet valve disk with water or saliva.

(2) From the front of the mask, thread the shortened tail of the outlet valve disk through the hole in the middle of the outlet valve seat.

(3) Press the outlet valve disk with a rotating motion into the mask until the shoulder on the cone slips through the hole in the valve seat, thus holding the disk in position on the valve seat. The disk should lie flat and smooth and be in continuous contact with the valve seat.

(4) Reseat the voicemitter-outlet valve cover.

32. Eyelens Outserts and M1 Waterproofing Bag

a. Eyelens Outserts.

(1) *Removal.* Lift the outsert from the eyelens.

(2) *Replacement.*

(*a*) To mount a replacement outsert over an eyelens, fold back the rubber apron all around the outsert (fig. 4).

(*b*) Lay the outsert over the eyering and hold the outsert in this position.

(*c*) Turn the rubber apron so that it covers the eyering at all points.

b. M1 Waterproofing Bag. Replace a damaged or missing waterproofing bag.

Section II. ORGANIZATIONAL MAINTENANCE

33. Service Upon Receipt of New Equipment

a. General. Ten individually boxed ABC–M17 masks are packed in a fiberboard box. The fiberboard pack's approximate weight and cubage are 46 pounds and 3.3 cubic feet. The fiberboard box may be packed in a cleated plywood box. Two cleated box fasteners secure the top of the box at each side; one cleated box fastener secures each end of the box. The plywood pack's approximate weight and cubage are 66 pounds and 4.0 cubic feet.

b. Unpacking.

(1) If the masks are overpacked in a plywood box, remove the cleated box fasteners and lift off the top of the plywood box. Set the top and fasteners aside for use if it is necessary to reship the masks. To insure the plywood box will be available for storage and for possible reuse, a note to save the box is stenciled on the inside of the top of the box.

(2) Open the fiberboard box and remove the individual boxes.

(3) Open the boxes and remove the masks.

(4) Open the carrier and remove the facepiece. Remove the heat-sealed vapor barrier bag, plastic shields that cover the inlet valve caps, and face form from each facepiece. (Turn in the face form through normal supply channels.)

(5) Inspect each mask (para 24).

(6) Replace the facepiece in the carrier and close the carrier.

(7) Plywood boxes ((1) above) may be stacked on their sides to form a bank of storage cells. Each storage cell may be marked (para 15) to designate the individual whose mask is to be stored in it.

34. Service Upon Receipt of Used Equipment

a. General. Used equipment will be packed as described in paragraph 33, except that the facepieces will not be packed in heat-sealed bags. Crumpled paper may be used instead of faceforms.

b. Unpacking.

(1) Unpack masks (para 33*b*(1), (2), and (3)).

(2) Open the carrier and remove the facepiece. Remove the face form or crumpled paper from the facepiece.

(3) Inspect each mask (para 24).

(4) Replace the facepiece in the carrier and close the carrier.

35. Flap Buttons

a. Removal. Remove damaged flap buttons from the mask by lifting the nose cup and the flap off the buttons. Then grasp the bottom of each button and pull it through the hole in the flap of the pouch. Always pull a button through the hole into the pouch. Never pull a button from the hole in the opposite direction, because the base of a button is larger than the head.

b. Replacement.

(1) Replace the short button in the hole nearest the outer edge of the mask. Using the finger to support the bottom of the button, force the head of the button through the hole so that the base of the button is inside the pouch and the head protrudes into the cavity of the mask.

(2) Replace the long button in the hole nearest the voicemitter (use procedure in (1) above).

(3) Button the flap of the pouch and fasten down the nose cup (para 30*b*(4)).

36. Temple Pins

a. Removal. If a portion of a damaged temple pin remains in position between the lugs, remove it. Cut the shaft of the damaged pin and withdraw the separated sections.

b. Replacement.

(1) Moisten the replacement temple pin with water.

(2) Starting either from above or below the two lugs molded in the faceblank, thread the tail of the pin through the hole in the nearest lug. Grasp the protruding portion of the tail and pull one knob of the pin through the hole. Then thread the tail through the second hole and pull the knob through that hole as well.

(3) Cut off the tail.

37. Voicemitter-Outlet Valve Cover

a. Removal.

(1) Grasp the tab at the bottom of the cover and lift the bottom portion of the cover from the outlet valve.

(2) Pull the sides of the cover away from the crimping ring (fig. 2) until the cover is detached from the studs that hold the cover in place.

(3) Pull the upper portion of the cover from beneath the flange around the voicemitter of the voicemitter-outlet valve assembly.

b. Replacement.

(1) Fit the upper portion of the cover over the upper portion of the voicemitter-outlet valve.

(2) Fit the openings at the sides of the cover over the studs (fig. 2).

(3) Using the lifting tab, pull the lower portion of the cover over the lower portion of the voicemitter-outlet valve assembly.

(4) Work the bead around the large opening that is under the flange of the voicemitter.

38. Clip Buckles

a. Removal. If the tab is damaged, do not install a new clip buckle. Turn the mask in.

(1) Straighten the fingers of the clip by bending them backward with a screwdriver or similar tool.

(2) Withdraw and discard the defective clip buckle.

b. Replacement.

(1) Moisten the fingers of the replacement clip with water. Press the fingers of the clip through the holes molded in the faceblank tab until the ends of the bent portions of the clip emerge from the rubber. (Replacement clip buckles are issued with the fingers of the clip bent in their use positions.)

(2) Release pressure and pull back on the clip so that the clip fully engages the tab.

39. Head Harness

a. Removal. Remove the head harness by releasing the straps from the buckles or by cutting the straps.

b. Replacement.

(1) Place a harness in the facepiece so that each strap is next to the buckle to which it will be attacked. The elastic webbing (fig. 2) that joins the two forehead straps may be either over or under the straps.

(2) Thread the end of each strap through the buckle by inserting the clinch tip at an angle. (The tips are wider than the buckle openings.) Pass each strap through the buckle from beneath the buckle and through the opening nearest the facepiece. Then pass the strap over the buckle bar and through the other opening.

(3) Pull the straps through the buckles about 1 inch.

(4) Check the head harness by stretching the head harness pad to see that all straps are under equal tension.

40. Carrier

a. Removal. Remove the waterproofing bag and other authorized items from their respective pockets in the old carrier.

b. Replacement.

(1) Inspect the new carrier to be sure that it is clean inside and out. Pass a hand over all inside surfaces to detect any imperfections that might damage the mask.

(2) Place authorized items into the pockets in the new carrier (para 6*e*).

(3) Stow the mask in the new carrier (fig. 18).

(4) Close the carrier.

Section III. DIRECT SUPPORT AND GENERAL MAINTENANCE

41. Direct Support Maintenance

Direct support maintenance personnel are authorized to make emergency repairs to the carrier such as replacing hardware and straps (fig. 6). In addition, direct support maintenance personnel are authorized to perform all maintenance allocated to lower categories of maintenance.

42. General Support Maintenance

General support maintenance personnel are authorized to perform all maintenance allocated to lower categories of maintenance.

APPENDIX A

REFERENCES

AR 40–3	Medical, Dental, and Veterinary Care
AR 700–62	Chemical Protective Clothing Policy and Utilization of Certain Chemical Corps Units and Equipment in Combat Areas
AR 746–10	Marking of Selected Clothing and Equipment
FM 21–11	First Aid for Soldiers
FM 21–40	Chemical, Biological, Radiological, and Nuclear Defense
FM 21–41	Soldier's Handbook for Chemical, Biological, Radiological, and Nuclear Defense
SB 3–30–2	Protective Mask Canisters and Filter Elements: Serviceability Lists
TB MED 223	Respiratory Protective Devices
TB 3–4230–207–10	Decontaminating and Reimpregnating Kit, Individual, M13
TM 3–220	Chemical, Biological, and Radiological (CBR) Decontamination
TM 3–4240–202–20P	Organizational Maintenance Repair Parts and Special Tool Lists: Mask, CBR: Field, ABC–M17
TM 3–4240–202–35P	DS, GS, and Depot Maintenance Repair Parts and Special Tool Lists: Mask, CBR: Field, ABC–M17
TM 3–4240–258–14	Operator's, Organizational, DS, and GS Maintenance Manual, Mask, Chemical-Biological: Field, M17A1 and Accessories
TM 3–6665–253–12	Operator and Organizational Maintenance Manual: Detector Kits, Chemical Agent, VGH, AN–M15A2A and AN–M15A2N
TM 38–750	The Army Maintenance Management System (TAMMS)
TM 740–90–1	Administrative Storage of Equipment

APPENDIX B

BASIC ISSUE ITEMS

There are no basic issue items for the ABC–M17 mask.

APPENDIX C

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C–1. General

The maintenance allocation chart (sec. II) lists the authorized maintenance functions assigned the maintenance categories for maintenance of the ABC–M17 mask. This chart is to be used by all levels of maintenance to insure complete support of the equipment.

C–2. Maintenance Functions

Maintenance functions authorized are limited to and defined as follows:

a. Inspect. To determine serviceability of an item by comparing its physical, mechanical, and electrical characteristics with established standards.

b. Test. To verify serviceability and to detect electrical or mechanical failure by use of test equipment.

c. Service. To clean, preserve, charge, and add fuel, lubricants, cooling agents, and air.

d. Adjust. To rectify to the extent necessary to bring into proper operating range.

e. Align. To adjust specified variable elements of an item to bring them to optimum performance.

f. Calibrate. To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared with certified standard.

g. Install. To set up for use in an operational environment, such as an emplacement, site, or vehicle.

h. Replace. To replace unserviceable items with serviceable like items.

i. Repair. Maintenance operations necessary to restore an item to serviceable condition through correction of damage or a specific failure. Repair may be accomplished at each category of maintenance.

j. Overhaul. Normally, the highest degree of maintenance performed by the Army in order to minimize time work that is in process, consistent with quality and economic of operation. It consists of that maintenance necessary to restore an item to completely serviceable condition as prescribed by maintenance standards in technical publications for each item of equipment. Overhaul normally does not return an item to like new, zero mileage, or zero hour condition.

k. Rebuild. The highest degree of materiel maintenance. It consists of restoring equipment as nearly as possible to new condition in accordance with original manufacturing standards. Rebuild is preformed only when required by operational considerations or other paramount factors and then only at the depot maintenance category. Rebuild reduces to zero the hours or miles the equipment, or component thereof, has been in use.

l. Symbols. A letter (symbol) in the maintenance function column indicates the lowest level at which that maintenance function is to be performed.

C–3. Explanation of Format

a. Group Number, Column 1. A list indicating the number that is assigned to each group, component, assembly, or subassembly to facilitate references. The numbers are identical to, and in the same sequence as, those assigned to the same group, component, assembly, or subassembly in the repair parts and tools list.

b. Functional Group, Column 2. A list o groups, sections, noun names of components, a

semblies, subassemblies, and modules on which maintenance is authorized.

c. Maintenance Function, Column 3. A list of maintenance functions. Each maintenance function applicable to a functional group entry is designated by a single letter (symbol).

d. Use of Symbols. Symbols used in the maintenance function columns are as follows:

Symbol	*Explanation*
C	Operator/crew maintenance
O	Organizational maintenance
F	Direct support maintenance
H	General support maintenance
D	Depot Maintenance

e. Tools and Equipment, Column 4. A list of special tools and test equipment, if required, used in performing the authorized maintenance function.

f. Remarks, Column 5. Self-explanatory.

Section II. MAINTENANCE ALLOCATION CHART

(1)	(2)	(3) Maintenance function										(4)	(5)
Group number	Functional group	Inspect	Test	Service	Adjust	Align	Calibrate	Install	Replace	Repair	Overhaul	Rebuild	Tools and equipment	Remarks
100	BAG, WATERPROOFING, CBR MASK, M1	C	--	C	--	--	--	C	C					*May be replaced at "H" when TESTER LEAKAGE, PROTECTIVE MASK, DOP, M14 is authorized.
	OUTSERT, EYELENS, M1	C	--	C	--	--	--	C	C					
	FACEPIECE GROUP:													
	FACEPIECE ASSEMBLY	C	--	C	--	--	--	--	--	O	D			
	*NOSE CUP ASSEMBLY, C10	C	--	C	--	--	--	--	D					
	*LENS, C5	C	D	C	--	--	--	--	D					
	*EYERING, C4	C	D	C	--	--	--	--	D					
	*VOICEMITTER-OUTLET VALVE ASSEMBLY, C29R1	C	D	C	--	--	--	--	D					
200	CARRIER GROUP:													Repair tools are part of the M37 mask repair kit which is issued as a component of the M14 maintenance repair kit (FSN 5180-782-6049).
	CARRIER ASSEMLY, M15	C	--	C	C	--	--	--	O	F				

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:

VERNE L. BOWERS,
Major General, United States Army,
The Adjutant General.

Distribution:

Active Army:

CNGB (1)
USAMB (2)
USAMC (5)
USAMUCOM (5)
USACDC (2)
USACDCCBRA (2)
USACDCADA (2)
USACDCARMA (2)
USACDCARTYA (2)
USACDCAVNA (2)
USACDCIA (2)
USACDCSWA (2)
USACDCEC (10)
CONARC (25)
ARADCOM (5)
ARADCOM Rgn (5)
OS Maj Comd (5)
Armies (5)
Corps (3)
Div (3)
Regt/Gp/Bde (3)
Bn (3)
Co/Btry (1)
Instl (2) except
  USAECFB (4)
  USAFACFS (4)
USMA (10)
Svc Colleges (10)
Br Sch (10) except
  USACMLCS (50)
USAMMCS (2)
USATC (1)
USAARMC (2)
USAPC (2)
USAIC (2)
Gen Dep (5)
Dep (5)
Army Dep (5)
EAMTMTS (1)
WAMTMTS (1)
MOTBA (1)
MOTBY (1)
MOTKI (1)
MOTSU (1)
Arsenals (3) except
  Edgewood (75)
PG (5)
POE (1)
Ft Knox FLDMS (10)
Units org under fol TOE:—1 ea.
  3–32
  3–500(AA–AC)
  29–1
  29–11
  29–500
  29–600
  29–610

ARNG: State AG (3); Units—same as active Army except allowance is one (1) copy each.

USAR: Same as active Army except allowance is one (1) copy each.

For explanation of abbreviations used, see AR 310–50.

☆ U. S. GOVERNMENT PRINTING OFFICE : 1971 | 714-205/5019